

WHAT IS CLAIMED IS:

- 1 1. A method of using a data communications network, the method comprising:
2 receiving at a gateway device a first communication from a first network that is addressed
3 for a network element of a second network, wherein the second network is based on a different
4 technology than the first network and wherein the gateway device comprises a layer 3 gateway;
5 transmitting the first communication from the gateway device to the second network;
6 receiving at the gateway device a second communication from the second network that is
7 addressed for a network element of the first network;
8 transmitting the second communication from the gateway device to the first network;
9 periodically polling the gateway device to obtain operating parameters related
10 communications between the first and second networks;
11 analyzing the operating parameters; and
12 generating a health report related to at least the gateway device, the health report being
13 based upon analysis of the operating parameters.
- 1 2. The method of claim 1 wherein polling the gateway device to obtain operating
2 parameters comprises obtaining information related to a flowcache.
- 1 3. The method of claim 1 wherein polling the gateway device to obtain operating
2 parameters comprises obtaining information related to an internet key exchange security
3 association.
- 1 4. The method of claim 1 wherein polling the gateway device to obtain operating
2 parameters comprises obtaining node configuration information.

- 1 5. The method of claim 4 wherein the node configuration information comprises a number
2 of layer 3 connections.
- 1 6. The method of claim 5 wherein the node configuration information comprises a number
2 of VPRN (virtual private routed network) connections.
- 1 7. The method of claim 5 wherein the node configuration information comprises a number
2 of IPSec tunnels.
- 1 8. The method of claim 1 wherein the first network comprises the Internet.
- 1 9. The method of claim 8 wherein the second network comprises at least one of a frame
2 relay network, an asynchronous transfer mode network, private internet protocol network or an
3 internet protocol virtual private network.
- 1 10. The method of claim 1 wherein the gateway further implements a firewall function when
2 transmitting communications between the first and second networks.
- 1 11. The method of claim 1 wherein analyzing the operating parameters comprises comparing
2 the operating parameters to a threshold value.
- 1 12. The method of claim 11 and further comprising setting a flag if the operating parameters
2 exceed the threshold value.

1 13. The method of claim 12 wherein comparing the operating parameters to a threshold value
2 comprises comparing the operating parameters to a warning threshold value and also comparing
3 the operating parameters to an augment threshold value.

1 14. A method of monitoring the stability of a network, the method comprising:
2 periodically polling an inter-network gateway to collect data related to the inter-network
3 gateway, the data related to at least one of a flowcache, a virtual private routed network, or an
4 internet key exchange security association;
5 processing the data to generate a number of parameters;
6 generating a report based on the parameters; and
7 automatically transmitting the report, the report being transmitted without human
8 intervention.

1 15. The method of claim 14 wherein the data comprises data related to a flowcache, a virtual
2 private routed network, and an internet key exchange security association.

1 16. The method of claim 14 wherein generating a report comprises indicating whether any of
2 the parameters indicate a possibility of a network instability.

1 17. The method of claim 16 wherein generating a report comprises generating a report that
2 has a warning flag if a parameter exceeds a first threshold and generating a report that has an
3 augment flag if a parameter exceeds a second threshold.

1 18. The method of claim 14 wherein polling an inter-network gateway to collect data related
2 to the inter-network gateway comprises collecting data related to a flowcache.

1 19. The method of claim 18 wherein the parameters comprise statistics related to flows,
2 predicted flows, connections, conversations and packets.

1 20. The method of claim 14 wherein polling an inter-network gateway to collect data related
2 to the inter-network gateway comprises collecting data related to a virtual private routed
3 network.

1 21. The method of claim 14 wherein polling an inter-network gateway to collect data related
2 to the inter-network gateway comprises collecting data related to an internet key exchange
3 security association.

1 22. The method of claim 21 wherein the parameters comprise a count of number of dead IKE
2 SAs.

1 23. The method of claim 14 wherein polling an inter-network gateway to collect data related
2 to the inter-network gateway further comprises collecting data related to card toggles, CPU
3 utilization or memory utilization.

1 24. In a system for monitoring the stability of a data communications network, a computer
2 program operable to periodically gather information related to the network and provide a report
3 related to the gathered information, the computer program comprising:
4 computer program code for automatically, periodically polling a plurality of inter-
5 network gateways to collect data related to the inter-network gateway, the data related to at least
6 one of a flowcache, a virtual private routed network, or an internet key exchange security
7 association;
8 computer program code for processing the data to generate a number of parameters;
9 computer program code for generating a report based on the parameters; and
10 computer program code for automatically transmitting the report, the report being
11 transmitted without human intervention.

1 25. The computer program of claim 24 wherein the program code operates on a UNIX-based
2 operating system.

1 26. The computer program of claim 24 wherein periodically polling the gateways comprises
2 initiating a SNMP connection with each of the gateways.

1 27. The computer program of claim 24 wherein periodically polling the gateways comprises
2 initiating a CLI connection with each of the gateways.

1 28. The computer program of claim 24 and further comprising computer program code for
2 writing data collected from the gateways into a file.

1 29. The computer program of claim 28 wherein the computer program code for writing data
2 comprises computer program code for writing raw data into a raw data file and computer
3 program code for writing summary data into a summary data file.

- 1 30. The computer program of claim 24 wherein the computer program code for automatically
- 2 transmitting the report comprises computer program code for automatically transmitting an
- 3 ASCII file via e-mail.

1 31. An apparatus for use in monitoring the stability of a network, the apparatus comprising:
2 a processor;
3 a memory coupled to the processor; and
4 an interface mechanism coupled to the processor;
5 wherein the processor runs software to periodically poll an inter-network gateway
6 through the interface mechanism to collect data related to the inter-network gateway, the
7 processor further processing the data to generate a number of parameters, generating a report
8 based on the parameters, and causing the report to be transmitted to a remote location.

1 32. The apparatus of claim 31 wherein the data related to at least one of a flowcache, a virtual
2 private routed network, or an internet key exchange security association.

1 33. The apparatus of claim 32 wherein the data comprises data related to all of a flowcache, a
2 virtual private routed network, and an internet key exchange security association.

1 34. The apparatus of claim 32 wherein polling an inter-network gateway to collect data
2 related to the inter-network gateway comprises collecting data related to a flowcache.

1 35. The apparatus of claim 34 wherein the parameters comprise statistics related to flows,
2 predicted flows, connections, conversations and packets.

1 36. The apparatus of claim 32 wherein polling an inter-network gateway to collect data
2 related to the inter-network gateway comprises collecting data related to a virtual private routed
3 network.

1 37. The apparatus of claim 32 wherein polling an inter-network gateway to collect data
2 related to the inter-network gateway comprises collecting data related to an internet key
3 exchange security association.

1 38. The apparatus of claim 31 wherein generating a report comprises indicating whether any
2 of the parameters indicate a possibility of a network instability.

1 39. The apparatus of claim 38 wherein generating a report comprises generating a report that
2 has a warning flag if a parameter exceeds a first threshold and generating a report that has an
3 augment flag if a parameter exceeds a second threshold.